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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,294

12/14/2006

Soren Aasmul

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EXAMINER

NUR, ABDULLAHI

ART UNIT

PAPER NUMBER

2877

MAIL DATE

DELIVERY MODE

10/28/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/584,294	<b>Applicant(s)</b> AASMUL, SOREN	
	<b>Examiner</b> ABDULLAHI NUR	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-20 and 23-30 is/are rejected.
- 7) ☒ Claim(s) 21 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/24/2007, 12/14/2006, 6/23/2006</u> .                        | 6) <input type="checkbox"/> Other: _____                          |



## **DETAILED ACTION**

### **Priority**

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### **Preliminary Amendment**

Receipt is acknowledged of the preliminary amendment filed on 6/23/2006. The amendment has been placed of record in the file.

### **The Information Disclosure Statements**

The prior art cited in the information disclosure statements filed on 7/24/2007, 12/14/2006, and 6/23/2006 has been considered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-20, 23-28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erdogan et al. (US Patent # 6,809,859 B2) [hereinafter Erdogan] in view of Stumbo et al. (US 2002/0060791 A1) [hereinafter Stumbo].

As to claim 13, Erdogan teaches an apparatus for the production and detection of fluorescence at or below a surface, said apparatus comprising: a light source 202 for directing fluorescence excitation light along a light path extending over a said surface;

and a detector 214 for receiving said light emitted as fluorescence after reflection at said interface.

Erdogan is silent to the reflector having a three dimensionally curved, shell-like light reflecting interface positioned to receive light from the light source passing over said surface along a portion of said light path and to reflect said light transversely with respect to said portion of the light path so as to focus said light on an illumination zone at or below said surface for stimulation of fluorescence at said zone, and to collect fluorescence light emitted at said zone and to reflect and at least partially collimate said light to pass back along said portion of the light path. Stumbo teaches curved reflector means 122 to improve efficiency, optical bandwidth, and cost relative to refractive optics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate curved reflector to the invention of Erdogan in order to improve efficiency, optical bandwidth, and cost relative to refractive optics.

As to claim 14, Erdogan in view of Stumbo teaches all as applied to claim 13, and in addition Erdogan teaches the beam splitter 206 reflecting light emitted by said light source to pass to said reflector and receiving fluorescence light from said reflector and passing said fluorescence light to said detector.

As to claim 15, Erdogan in view of Stumbo teaches all as applied to claim 14, and in addition Erdogan's invention is equally capable of rendering the reflector, light source and detector being arranged in a generally coplanar manner and said beam splitter having a planar reflective interface that lies in a plane orthogonal to the co-

planarity of the reflector, light source and detector.

As to claim 16, Erdogan in view of Stumbo teaches all as applied to claim 13, and in addition Erdogan teaches the excitation filter 204 selecting an excitation wavelength from the light emitted by the light source to pass to said reflector.

As to claim 17, Erdogan in view of Stumbo teaches all as applied to claim 13, and in addition Erdogan teaches the emission filter 210 selecting an emitted fluorescence wavelength to pass to said detector.

As to claim 18, Erdogan in view of Stumbo teaches all as applied to claim 13, and in addition Erdogan teaches a lens (208, 212) focusing fluorescence light on said detector. It is to be noted that lens can have both functions of collimating or focusing light to a medium.

As to claims 19 and 20, Erdogan in view of Stumbo teaches all as applied to claim 13. Erdogan is silent to the paraboloid reflector interface. Stumbo teaches paraboloid reflector 122 to improve efficiency, optical bandwidth, and cost relative to refractive optics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate paraboloid reflector to the invention of Erdogan in order to improve efficiency, optical bandwidth, and cost relative to refractive optics.

As to claims 23, 24 and 25 Erdogan in view of Stumbo teaches all as applied to claim 13. Erdogan is silent to the paraboloid reflector interface. Stumbo teaches paraboloid reflector 122 to improve efficiency, optical bandwidth, and cost relative to refractive optics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate paraboloid reflector to the invention of Erdogan in order to improve efficiency, optical bandwidth, and cost relative to refractive optics.

As to claims 26-28, Erdogan in view of Stumbo teaches all as applied to claim 19, 21 and 22. Erdogan is silent to the half paraboloid reflector. Stumbo teaches a half-paraboloid focusing reflector 122 to improve efficiency, optical bandwidth, and cost relative to refractive optics. It is to be noted that references reflector can serve as a partial, or half paraboloid reflector

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a half-paraboloid reflector to the invention of Erdogan in order to improve efficiency, optical bandwidth, and cost relative to refractive optics.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Erdogan in view of Stumbo.

As to claim 29, Erdogan in view of Stumbo teaches all as applied to claim 13. Erdogan in view of Stumbo is silent to the housing containing the light source, reflector and detector and having a base surface containing a window for passing excitation light out of the housing and receiving fluorescence light into the housing and being for engagement in use against the said surface at or below which said fluorescence occurs. The Examiner takes Official Notice of the fact that providing housing for functional elements of an apparatus is well known in art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a housing to the apparatus of Erdogan in view of Oysten to contain the functional elements of the apparatus.

As to claim 30, Erdogan in view of Stumbo teaches all as applied to claim 13, and in addition Erdogan's apparatus is capable of rendering said light path make an angle of no more than 10 degrees with a plane defined by said base surface.

***Allowable Subject Matter***

Claims 21 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claim 21, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus, wherein said reflector interface is defined by an equation  $Z = \frac{cr^2}{1 + (1 - (1+k)c^2r^2)^{1/2}}$  wherein: c is from 0.07 to 0.5 and k is from -1.5 to -0.7, where z is the "sag" of z-coordinate along the rotational axis, c is the curvature (the reciprocal of the radius R), k is the conical constant and r is the radial coordinate. , in combination with the rest of the limitations of the claim.

As to claim 22, the prior art of record, taken alone or in combination, fails to disclose or render obvious an apparatus, wherein said reflector interface is defined by an equation  $Z = \frac{cr^2}{1 + (1 - (1+k)c^2r^2)^{1/2}}$  wherein: c is from 0.07 to 0.5 and k is from -1.5 to -0.7, where z is the "sag" of z-coordinate along the rotational axis, c is the



curvature(the reciprocal of the radius R), k is the conical constant and r is the radial coordinate , in combination with the rest of the limitations of the claim.

### ***Conclusion***

Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the **next reply** after the Office action in which the well known statement was made.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 270 1298**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax

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phone number for the organization where this application or proceeding is assigned is  
**571 273 8300.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Abdullahi Nur  
Patent Examiner,  
Art Unit 2877

**/Kara E Geisel/  
Primary Examiner,  
Art Unit 2877**